

Docket No. 95-18A2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of:

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Sam Moy,
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And
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Examiner: Edward A. Miller

Serial No.: 09/665,190

Group Art Unit: 3641

Filed: September 12, 2000

For: HIGH ENERGY THERMOPLASTIC ELASTOMER PROPELLANT

REMARKS

The claims are 6 to 15. Claims 6 to 12, 14 and 15 have been withdrawn from consideration pursuant to a Restriction Requirement, traversed by the Applicants, and not yet made Final by the Examiner. The present status of the Application is unclear in that the Examiner has found the Applicants previous replies unresponsive and has required correction, but appears to have gone on to examine the remaining claim and state reasons for rejection.

The Examiner has found the Supplemental Declaration filed with the previous Amendment improper in that it refers to the parent application, not the present application. A new Supplemental Declaration was prepared and circulated to the seven

named Inventors who reside separately in three States, and this corrected Supplemental Declaration is filed herewith.

In the September 16, 2002, Office Action, the Examiner found that the Amendment made to the Specification detailing the history of previous Applications from which the present Application descends was improper. It was the Examiner's position that the submission of new claims by Preliminary Amendment in the present Application, since those claims were not present in the parent, represented new matter, and required, therefore, that this Application be styled a continuation-in-part. Further, since the Applicant filed earlier Applications without challenging findings under the first paragraph of 37 C.F.R. § 112, it is the Examiner's position that all previous Applications are required to be styled continuations-in-part. Applicant acquiesced in the Examiner's requirement in order to advance prosecution and to be certain that this Supplemental Amendment is seen as "bona fide" under 37 C.F.R. § 1.135(c), but asserted that this is not and has never been the law.

The Examiner, in the Communication mailed January 30, 2003, found the submitted change failed to comply with 37 C.F.R. § 1.52(b)(2)(i), in that the lines of the amendment were not 1 ½ or double spaced. This inadvertence has been corrected in the Amendments to the Specification included herewith.

Finally, the Examiner has taken the position that the new claims are new matter, and has required the Applicant to show support in the Specification for each element in

the claim to which the Examiner would restrict prosecution, and has renewed this demand in the Communication mailed January 30, 2003. A detailed discussion of the support for each element of the claim follows:

Applicant's Attorney has stressed that the present claims were drafted from the original Specification and no other source, and it is difficult to see that there could be a question of support. Moreover, the subject matter of the claims track the claims originally filed with the Application and have been narrowed, to reflect the preferred embodiment as illustrated by the Examples of the specification. This has been done further in the present Amendments to the Claims filed herewith.

Thus, in the original Claim 1 of the Application, there was claimed:

"A propellant mixture formed by combining a pair of high energy propellants, said pair having a first fast burn rate high energy propellant and a second slow burn rate high energy propellant, the ratio of the fast burn rate to the slow burn rate being at least three as measured at 25 kpsi, the pair of propellants being equi-energetic and having an average impetus of at least 1300 Joules/g, the first propellant having 20% by wt. of an oxetane, thermoplastic elastomer energetic binder, 76% by wt. Cl-20 and 4% by wt. TNAZ, the second propellant including an oxetane thermoplastic elastomer energetic binder and RDX, whereby the second slow burn rate propellant enters the ballistic cycle later than the first fast burn rate propellant."

This same concept is reflected clearly in the Abstract, which states:

"...In a preferred embodiment, the propellant is actually a pair of high energy propellants comprising a mixture of first and second high energy propellants with the first propellant having a burning rate at least two times faster than the burning rate of the second propellant. The first propellant includes an oxetane thermoplastic elastomer energetic binder admixed with CL-20 high energy explosive filler. The second propellant including an oxetane thermoplastic elastomer energetic binder admixed with RDX high energy explosive filler."

The Specification also recites, at Page 5, lines 8 to 15:

"It has also been discovered that a pair of high energy propellants may be combined to produce a propellant mixture having a first propellant having a burning rate at least three times faster than the burning rate of the second propellant. In the preferred embodiment, the first propellant includes an oxetane thermoplastic elastomer energetic binder admixed with CL-20 high energy explosive filler. The second propellant including an oxetane thermoplastic elastomer energetic binder admixed with RDX high energy explosive filler or RDX and TNAZ mixtures."

It should, thus, be clear that the Specification as filed supports a two propellant mixture, with a fast burn propellant containing an oxetane binder and CL-20 and a slower burn propellant containing an oxetane binder and RDX. This is what is shown in the present claim. The present claims contains further limitations, including an enumeration

of the oxetane compounds which may be employed, as shown at page 4, lines 17 to 19, of the Specification, which states:

"It is made from two types of monomers: 3,3-bis-azidomethyl-oxetane, or BAMO as a hard block, and 3-azidomethyl-3-methyloxetane, or AMMO as a soft block."

The present claim also includes details of the mixture procedures, as described in the Specification at page 6, line 37, to page 7, line 2, which states:

"The method of preparing the formulations comprised the steps of mixing at about 95°C and extruding at slightly lower temperatures."

These "slightly lower temperatures" shown in TABLE III to range from 55° C to 91° C as shown in the Die temperatures employed in processing the sample materials.

Thus, it is submitted that the present claim is fully supported by the Specification, and that all elements, including limitations are found there. The Examiner is expressly solicited to examine the claim as it is currently amended.

And, while there has been no examination of the claim on the record, the Applicant would like to address the comments made by the Examiner. The Examiner asserts that such a mixture would be expected to have an average of the properties of the mixture, and cites several cases. Applicant's Attorney is informed that the impulse provided by a propellant is the area under a pressure-time trace. With a fast burning propellant, the pressure-time trace is a high spike; with a slow burning propellant, a

lower, longer trace. By combining the two, the pressure-time trace starts out with a high spike, but drops to the lower, longer trace of the slower burning propellant, rather than zero. Thus, the impulse provided by the combination, the area under the curve of the pressure-time trace for the combination, is greater for the combination than it would be for an equivalent amount of either the fast burning propellant or the slower burning propellant taken individually.

WHEREFORE, in consideration of the above amendments and arguments, examination and allowance are respectfully requested.